Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-39. (canceled)

40. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source, ~~a switch configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period, and a processor that controls the switch, the method comprising: presetting, through use of the processor,~~ wherein a pre-selected pulse shape to be produced by the laser source~~,~~ is presettable based on known properties of a target material to be processed on a workpiece~~,; selecting, through use of the processor, independently of the pre-selected pulse shape,~~ and a time interval between at least two successive transmissions of pulses onto the workpiece~~; and~~ is selectable independently of the pre-selected pulse shape, the method comprising:

pulsing the pulsed laser system~~, through use of the processor,~~ by ~~closing the switch~~ triggering storage of energy by the laser source for a fixed, predetermined period of time prior to each of a plurality of emission ~~period~~ periods regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, ~~so as to cause~~

allowing energy to be emitted from the laser source during each emission period, and

causing the laser source to process the target material on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as preset regardless of the time interval, without selection of the time interval affecting the pulse shape.

41. (previously presented): The method of claim 40 wherein the pre-selected pulse shape is a pre-selected pulse width.

42. (previously presented): The method of claim 40 wherein the pre-selected pulse shape is a pre-selected pulse energy.

43. (previously presented): The method of claim 40 wherein the pre-selected pulse shape is a pre-selected peak pulse power.

44. (previously presented): The method of claim 40 wherein the step of pulsing the pulsed laser system comprises micromachining a semiconductor circuit on a silicon substrate.

F' cont'd

45. (previously presented): The method of claim 40 wherein the target material is a thick-film electrical element.

46. (previously presented): The method of claim 40 wherein the target material is a thin-film electrical element.

47. (previously presented): The method of claim 40 wherein the target material is a resistor.

48. (previously presented): The method of claim 40 wherein the target material is a capacitor.

49. (previously presented): The method of claim 40 wherein the target material is a conductive link.

50. (previously presented): The method of claim 40 wherein the step of presetting the pre-selected pulse shape is performed by computer control.

51. (previously presented): The method of claim 40 wherein the pre-selected repetition rate is selected by computer control.

52. (previously presented): The method of claim 40 wherein the laser source comprises a laser pump and a laser rod, and the pulsed laser system comprises a switch that, when closed in an on state, causes energy from the laser pump to be stored in the laser and that, when opened in an off state, allows energy to be emitted from the laser rod during an emission period.

F' contd

53. (previously presented): The method of claim 52 wherein:

the pulsed laser system further comprises a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod, and an output reflector through which energy is emitted from the laser rod; and

the switch is interposed between the laser rod and the output reflector.

54. (previously presented): The method of claim 40 wherein the step of pulsing the pulsed laser system comprises preventing a secondary laser emission from impinging on the workpiece after allowing a primary pulse to impinge on the workpiece.

55. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source, ~~a switch configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period, and a processor that controls the switch, the method comprising: presetting, through use of the processor,~~ wherein a pre-selected time interval between at least two successive transmissions of pulses onto a workpiece~~,~~ is presettable based on known properties of a target material to be processed on the workpiece~~,; selecting, through use of~~

~~the processor, independently of the pre-selected time interval,~~ and a pulse shape to be produced by the laser source~~; and~~ is selectable independently of the pre-selected time interval, the method comprising:

pulsing the pulsed laser system, ~~through use of the processor,~~ with the pulse shape selected independently of the pre-selected time interval, by ~~closing the switch~~ triggering storage of energy by the laser source for a period of time prior to each of a plurality of emission ~~period~~ periods that is fixed and predetermined for the selected pulse shape regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, ~~so as to cause~~

allowing energy to be emitted from the laser source during each emission period, and

causing the laser source to process the target material on the workpiece, while the pre-selected time interval remains as preset regardless of the pulse shape, without selection of the pulse shape affecting the time interval.

F' cont'd

56. (previously presented): The method of claim 55 wherein the pre-selected pulse shape is a pre-selected pulse width.

57. (previously presented): The method of claim 55 wherein the pre-selected pulse shape is a pre-selected pulse energy.

58. (previously presented): The method of claim 55 wherein the pre-selected pulse shape is a pre-selected peak pulse power.

59. (previously presented): The method of claim 55 wherein the step of operating the pulsed laser system comprises micromachining a semiconductor circuit on a silicon substrate.

60. (previously presented): The method of claim 55 wherein the target material is a thick-film electrical element.

61. (previously presented): The method of claim 55 wherein the target material is a thin-film electrical element.

62. (previously presented): The method of claim 55 wherein the target material is a resistor.

63. (previously presented): The method of claim 55 wherein the target material is a capacitor.

64. (previously presented): The method of claim 55 wherein the target material is a conductive link.

C' cont'd

65. (previously presented): The method of claim 55 wherein the step of presetting the pre-selected pulse shape is performed by computer control.

66. (previously presented): The method of claim 55 wherein the pre-selected repetition rate is selected by computer control.

67. (previously presented): The method of claim 55 wherein the laser source comprises a laser pump and a laser rod, and the pulsed laser system comprises a switch that, when closed in an on state, causes energy from the laser pump to be stored in the laser and that, when opened in an off state, allows energy to be emitted from the laser rod during an emission period.

68. (previously presented): The method of claim 67 wherein:

the pulsed laser system further comprises a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod, and an output reflector through which energy is emitted from the laser rod; and

the switch is interposed between the laser rod and the output reflector.

69. (previously presented): The method of claim 55 wherein the step of operating the pulsed laser system comprises preventing a secondary laser emission from impinging on a workpiece after allowing a primary pulse to impinge on the workpiece.

70. (previously presented): The method of claim 40 wherein the target material is a trimmable component and the step of selecting a repetition rate is performed dynamically during trimming of the trimmable component so as to permit the trimmable component to be measured accurately during trimming of the trimmable component.

71. (previously presented): The method of claim 70 wherein the step of presetting a pre-selected pulse shape is performed so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating.

F' cont'd

72. (previously presented): The method of claim 40 wherein the target material is a trimmable component and the step of presetting a pre-selected pulse shape is performed so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating.

73. (previously presented): The method of claim 55 wherein the target material is a trimmable component and the step of presetting a pre-selected repetition rate is performed so as to permit the trimmable component to be measured accurately during trimming of the trimmable component.

74. (previously presented): The method of claim 73 wherein the step of selecting a pulse shape is performed dynamically during trimming of the trimmable component so as to allow the

trimmable component to be cut all the way through the trimmable component without undue heating.

75. (previously presented): The method of claim 55 wherein the target material is a trimmable component and the step of selecting a pulse shape is performed dynamically during trimming of the trimmable component so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating.

76. (previously presented): The method of claim 40 wherein the step of selecting the time interval is performed in a manner such that pulses are produced by the laser source at a maximum repetition rate of the laser system.

77. (previously presented): The method of claim 76 wherein the maximum repetition rate is about 50 kilohertz.

78. (previously presented): The method of claim 40 wherein the pulsed laser system is pumped at constant power regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece.

79. (previously presented): The method of claim 40 wherein the step of presetting the pre-selected pulse shape is performed by computer control.

80. (previously presented): The method of claim 40 wherein the step of selecting the time interval between the at least two successive transmissions of pulses onto the workpiece is performed by computer control.

81. (previously presented): The method of claim 55 wherein the step of presetting the pre-selected time interval is performed in a manner such that pulses are produced by the laser source at a maximum repetition rate of the laser system.

82. (previously presented): The method of claim 81 wherein the maximum repetition rate is about 50 kilohertz.

83. (previously presented): The method of claim 55 wherein the pulsed laser system is pumped at constant power regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece.

84. (previously presented): The method of claim 55 wherein the step of presetting the pre-selected pulse shape is performed by computer control.

85. (previously presented): The method of claim 55 wherein the step of selecting the time interval between the at least two successive transmissions of pulses onto the workpiece is performed by computer control.

86. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source continuously pumped at constant power, ~~and a processor that controls output of the laser source, the method comprising: presetting, through use of the processor,~~ wherein a pre-selected pulse shape to be produced by the laser source~~,~~ is presettable based on known properties of a target material to be processed on a workpiece~~,; selecting, through use of the processor, independently of the pre-selected pulse shape,~~ and a time interval between at least two successive transmissions of pulses onto the workpiece~~; and~~ is selectable independently of the pre-selected pulse shape, the method comprising:

pulsing the pulsed laser system, ~~through use of the processor,~~ while the laser source is continuously pumped at constant power, ~~to cause~~ by triggering storage of energy by the laser source for a period of time prior to each of a plurality of emission periods, and

causing the laser source to process the target material on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as preset regardless of the time interval, without selection of the time interval affecting the pulse shape.

87. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source continuously pumped at constant power, ~~and a processor that controls output of the laser source, the method comprising: presetting, through use of the processor,~~ wherein a pre-selected time interval between at least two successive transmissions of pulses onto a workpiece~~,~~ is presettable based on known properties of a target material to be processed on the workpiece~~,; selecting, through use of the processor, independently of the pre-selected time interval,~~ and a pulse shape to be produced by the laser source~~; and~~ is selectable independently of the pre-selected time interval, the method comprising:

pulsing the pulsed laser system, ~~through use of the processor,~~ while the laser source is continuously pumped at constant power, with the pulse shape selected independently of the pre-selected time interval, ~~to cause~~ by triggering storage of energy by the laser source for a period of time prior to each of a plurality of emission periods, and

causing the laser source to process the target material on the workpiece, while the pre-selected time interval remains as preset regardless of the pulse shape, without selection of the pulse shape affecting the time interval.

88. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source, ~~a switch configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period, and a processor that controls the switch, the~~

~~method comprising: presetting, through use of the processor,~~ wherein a pre-selected pulse energy characteristic to be produced by the laser source~~,~~ is presettable based on known properties of a trimmable component to be micro-machined on a workpiece~~,; dynamically selecting, through use of the processor,~~ and a time interval between at least two successive transmissions of pulses onto the workpiece is selectable independently of the pre-selected pulse energy characteristic, during trimming of the trimmable component, ~~a time interval between at least two successive transmissions of pulses onto the workpiece,~~ so as to permit the trimmable component to be measured accurately during trimming of the trimmable component~~,; and~~ the method comprising:

pulsing the pulsed laser system, ~~through use of the processor,~~ by ~~closing the switch~~ triggering storage of energy by the laser source for a fixed, predetermined period of time prior to each of a plurality of emission ~~period~~ periods regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, ~~so as to cause~~

allowing energy to be emitted from the laser source during each emission period, and

causing the laser source to micro-machine the trimmable component on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse energy characteristic remains as preset regardless of the time interval, without selection of the time interval affecting the pulse energy characteristic.

89. (previously presented): The method of claim 88 wherein the step of presetting a pre-selected pulse energy characteristic is performed so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating.

90. (previously presented): The method of claim 88, wherein the step of micro-machining the trimmable component comprises trimming of a thick-film electrical element.

91. (previously presented): The method of claim 88, wherein the step of micro-machining the trimmable component comprises trimming of a thin-film electrical element.

92. (previously presented): The method of claim 88, wherein the step of micro-machining the trimmable component comprises trimming of a resistor.

93. (previously presented): The method of claim 88, wherein the step of micro-machining the trimmable component comprises trimming of a capacitor.

94-97. (withdrawn)

98. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source and having programmable pulse energy characteristics, ~~and further comprising a processor that controls output of the laser source, the method comprising: presetting, through use of the processor,~~ wherein a pre-selected pulse energy characteristic to be produced by the laser source~~,~~ is presettable based on known properties of a trimmable component to be micro-machined on a workpiece,~~; dynamically selecting, through use of the processor,~~ and a time interval between at least two successive transmissions of pulses onto the workpiece is dynamically selectable independently of the pre-selected pulse energy characteristic, during trimming of the trimmable component, ~~a time interval between at least two successive transmissions of pulses onto the workpiece,~~ so as to permit the trimmable component to be measured accurately during trimming of the trimmable component,~~; and~~ the method comprising:

pulsing the pulsed laser system, ~~through use of the processor, so as to cause~~ by triggering storage of energy by the laser source for a period of time prior to each of a plurality of emission periods, and

causing the laser source to micro-machine the trimmable component on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse energy characteristic remains as preset regardless of the time interval, without selection of the time interval affecting the pulse energy characteristic.

99. (previously presented): The method of claim 98 wherein the trimmable component is a resistor and the pulse energy is about 200-300 microjoules.

100. (previously presented): The method of claim 99 wherein resistor comprises a low ohm material and the pulse energy is about 300 microjoules.

101. (previously presented): The method of claim 98 wherein the selected time interval between two successive transmission of pulses to the trimmable component is in a range of about 1 millisecond (1 kilohertz) during measurement and about 20 microseconds (50 kilohertz) during high-speed trimming prior to measurement.

102. (previously presented): The method of claim 98 wherein the energy characteristic is a pulse width of about 125 nanoseconds.

103. (previously presented): The method of claim 98 wherein the energy characteristic is a pulse width in the range of about 70 nanoseconds to 125 nanoseconds.

104. (previously presented): The method of claim 98 wherein the energy characteristic is a pulse width long enough that trimmable component is cut through to the bottom of the trimmable component while substantial lateral heat conduction is avoided, whereby microcracking is avoided.

105. (previously presented): The method of claim 98 wherein the laser source is a continuously pumped laser source and wherein the laser system comprises a switch configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period.

Pending

106. (previously presented): The method of claim 98 wherein the laser source is diode pumped.

107-111. (withdrawn)